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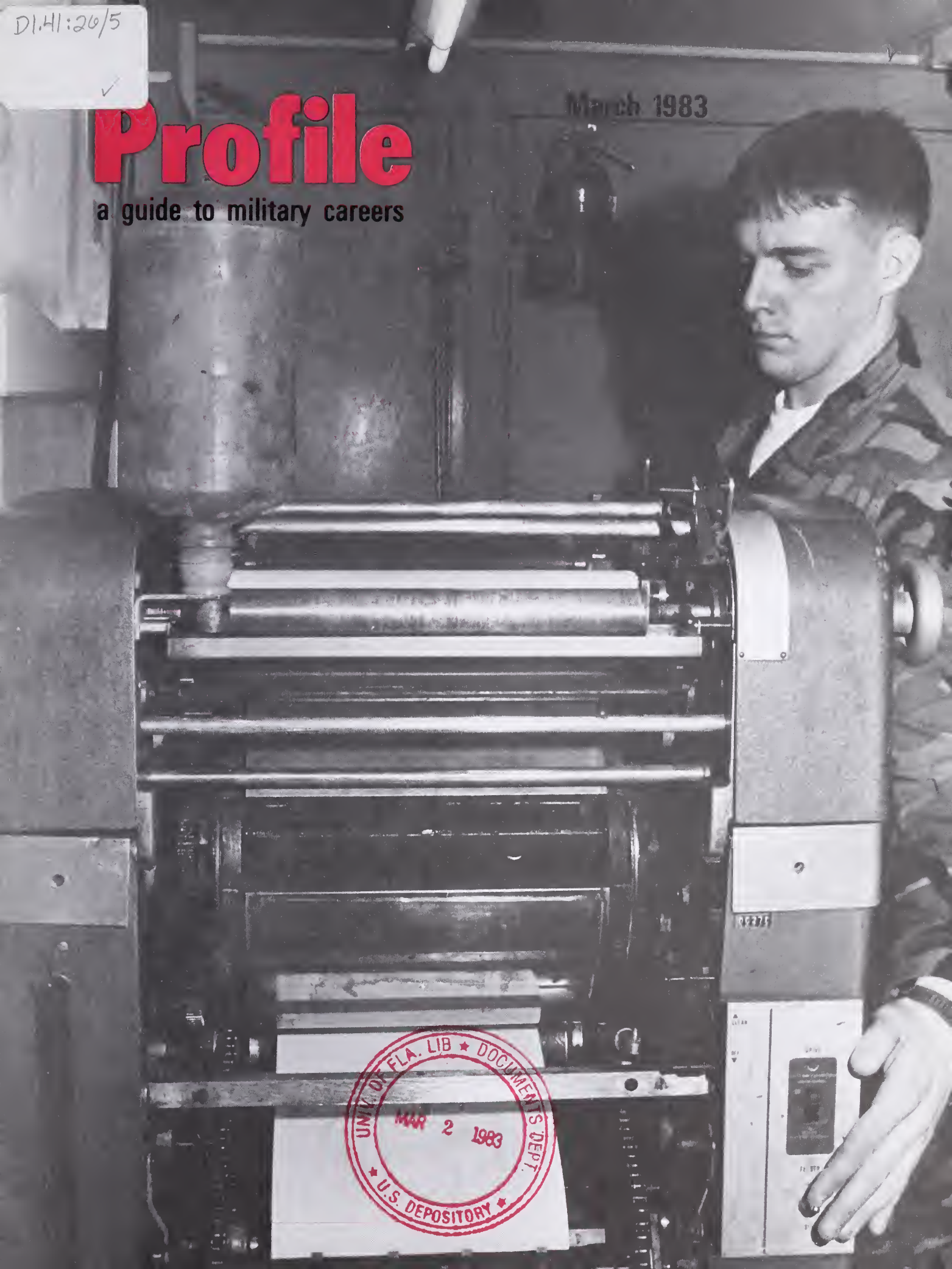
Profile

a guide to military careers

March 1983



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Academies seek nominees

Students desiring a college education at a top-flight institution and subsequent military service as a commissioned officer should consider attendance at one of the nation's service academies.

High school juniors who are considering submitting an application for entrance to a service academy should begin **now** to ensure consideration.

Candidates for the Military, Naval and Air Force Academies must have a nomination in order to be considered for appointment. Most candidates receive nominations from members of the U.S. Congress, although nominations are available from other sources (see PROFILE, October 1982). The spring of the high school junior year is the recommended time to apply for congressional nominations; it is not necessary to know the congressional member personally.

Prospective candidates should also request a pre-candidate questionnaire from the service academy at the time they apply for nomination so that an admissions file may be initiated. Questions should be referred to the respective academies' admission office. The addresses are listed below.

- U.S. Military Academy
  Admissions Office
  West Point, N.Y. 10996

- Director of Cadet Admissions
  U.S. Naval Academy
  Annapolis, Md. 21402

- Director of Cadet Admissions
  U.S. Air Force Academy
  Colorado Springs, Colo. 80840

Appointments to the Coast Guard Academy are made competitively on a nationwide basis. A nomination is not required. Qualified men and women may apply by writing to Director of Admissions, U.S. Coast Guard Academy, New London, Conn. 06320.

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4 'River Coasties'— Guardians of the waterways

Mark Twain wrote of the glamour, romance and excitement of the Mississippi River, but to the Coast Guardsmen who work her daily, the river is unromantic and often dangerous.

8 Army goes to the dogs for drug deterrence

These specially trained dogs with their sense of smell 200 times that of man, make a game of catching drug smugglers and users in the Army.

12 Repro Marines keep the presses rolling

Have presses, will travel, could be the motto for the reproduction Marines assigned to Camp Elmore in Norfolk, Va.

16 Navy submariners— America's underwater warriors

Sailors find they must be a notch above most men to serve in a Navy that sails under the sea.

20 Flight engineers— the Air Force's flying secretaries

Paper work aside, these enlisted fliers are constantly buzzing with activity around their aircraft.

About the covers

Cpl. Daniel Dunn, a Marine offset press operator a Camp Elmore, Va., uses a small reproduction press to print a job order. The Norfolk based Marine and his co-workers support Marine Corps units in southern Virginia and the Carolinas with field reproduction capabilities. (Photo by Dave Marriott)

Coast Guardsmen on a river tender prepare to hoist a buoy onto the deck of their craft. River Coast Guardsmen keep the inland waterways open to shipping and pleasure boating year-round.

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"Your true pilot cares nothing about anything on earth but the river, and his pride in his occupation surpasses the pride of kings."

Mark Twain

River Coasties

Guardians of the waterways

By Tech. Sgt. Dan Allsup
and Petty Officer
2nd Class Tom Gillespie

"The great Mississippi, the majestic, the magnificent Mississippi rolling its mile-wide tide along, shining in the sun..." From "Life on the Mississippi," by Mark Twain—1883.

Unlike Twain's river, Master Chief Petty Officer Don Urquhart's Mississippi is cold and murky on this chilly day as low thunder clouds pose menacingly above the river-tender Sangamon.

But the 10-man enlisted crew of the Sangamon pays little heed to the gathering thunderheads. Threatening weather or not, they still have a job to do. As if to deny the bleak weather, sweat stains their uniforms as they wrestle the cumbersome channel buoys on and off the slippery metal decks of their boat.

Sangamon, out of the Coast Guard's Aids to Navigation Facility in Peoria, Ill., is on a routine 14-day, 440-mile voyage down the Illinois River into the Mississippi and then up to Keokuk, Iowa, before returning to home port. Their job is to mark the river channel, light the passageways and place the buoys for all river traffic.

While on a tour of river duty, the crew of Sangamon toils from dawn to dusk gathering and placing the heavy buoys. There is little time for wisecracking or pranks as the cutter moves slowly from one marked position to another.

Keeping the navigational aids in place on the rivers is a never-ending struggle against the natural element and errant river commercial traffic. Often the Sangamon and her sister ship the Cimarron, which works the Tennessee and Cumberland Rivers, replace as many as 60 percent of the buoys on one trip down the rivers. The job is hard and often dangerous.

"The buoys we use weigh 300 to 400 pounds, and the sinkers that hold them down weigh 1,500 to 2,000 pounds," said Petty Officer 3rd Class Red Parson of the Cimarron. "When that much weight is swinging around on the buoy deck, you have to keep your eyes on the load and make sure you don't hit anybody. Everybody has to pay attention to what's happening on the buoy deck."

In addition to setting buoys, the crews must frequently reconstruct navigational lights along the river which have been knocked down by high water, bank erosion and stray barge traffic. Twenty-foot towers must be built, guy wires strung and reflective plywood "day markers" hoisted up the towers.

Although navigational aids work is their primary concern, the river crews must also respond to chemical and oil spills, as well as numerous search and rescue cases, often on short notice.

Units like the Sangamon and Cimarron patrol all major inland riverways, and are responsible for placing navigational aids to assist both commercial and pleasure river traffic.

The river crews are responsible for law enforcement while on the river. They are designated federal officers and carry a complement of shotguns, M-16 rifles and .45 caliber handguns in the ships' armories.

Although Twain called the riverboats a "rather handsome sight..." the Coast Guard's river boats are not so pretty. The boats are 65-foot cutters made more for

(Above) Crewmen scrape the marine growth from a large buoy hoisted from its mooring to the deck of a Coast Guard tender. After the cleaning and repairs are completed, the buoy will be set to continue guiding mariners. (Right) A large buoy covered with marine growth and its concrete sinker is hoisted to the deck of the Coast Guard tender. Chain and sinker can weigh many thousands of pounds according to the size of the buoy. The tender's crew routinely check buoys on stations and day markers on shore to assure that they are in working condition to guide mariners.

the unromantic real work on the river than for catering to the Mississippi gambler. The narrow walkways along the decks are at times slimy and slippery, and the crew has to step cautiously around pools of oily river water in their path.

In front of and connected to the Sangamon is a 113-foot barge loaded with stacked buoys, cranes and other equipment needed for the heavy work.

Leading to the bridge is a narrow passageway and stairs. The bridge itself is cramped and strewn

with river charts and impressive navigational equipment. Squeezed in is Urquhart, the cutter's captain.

"When I was 17, I took the Navy frogman test and passed," the master chief petty officer said. "But, there weren't any openings. The Navy recruiter told me the Coast Guard might have openings. I asked him what the heck was the Coast Guard."

Twenty-seven years after Urquhart found out about the Coast Guard, he says, "I'll stay 'til they throw me out. I'll be here as long as they let me stay on the river."

Like Twain's ship captain, Urquhart rules his boat from a throne-like perch on the bridge. He communicates through a loud-speaker giving terse instructions and commands to his crew. Although his gruffness and hard-shelled attitude are contrary to his good-nature, his orders are followed without hesitation.

Twain wrote, "When I was a boy, there was but one permanent ambition among my comrades in

(Left) All attention is on the lighted radar reflector buoy as the crane operator prepares to sit it on the buoy deck. With thousands of pounds in his control, the operator must insure all safety precautions are taken. (Below) The 65-foot Cimarron, connected to a barge loaded with stacked buoys, cranes and other equipment needed for their many functions on the river, does not reflect the handsome sight Twain describes in 'Life on the Mississippi.' These river boats are made for the unromantic real work required on the river rather than catering to the Mississippi gambler.

our village on the west bank of the Mississippi. That was to be a steamboatman."

Urquhart too, is a born river man who says he has always wanted to live on the water. He holds little stock in the talk of some of today's young men not willing to put in a day's work for a day's pay.

"They don't complain and they don't moan and groan—they just work their rear-ends off. But the big thing to remember is that an E-4 on this boat working for 14 hours a day, 15 days straight, gets paid the same amount of money as the E-4 working five days a week behind a desk. They don't get paid one extra cent." Twain wrote that "work consists of whatever a body is obliged to do..."

"Why do they do it?" Urquhart asks, speaking more to himself than anyone else. He then answers, "Pride—just plain, simple pride in their boat and work."

The Coast Guardsmen might not receive extra pay, but their work is more than appreciated by the river people they serve.

Tugboat captain Bill Harmon summed up the feelings of the river pilots for the work of the river Coast Guard crews. "I've been on the river 46 years and I've seen a big change in it. There's a much better, marked channel now.

"It's just better navigation now than before. Eight barges used to be a load. Now we're taking 35 or 40 barges down river.

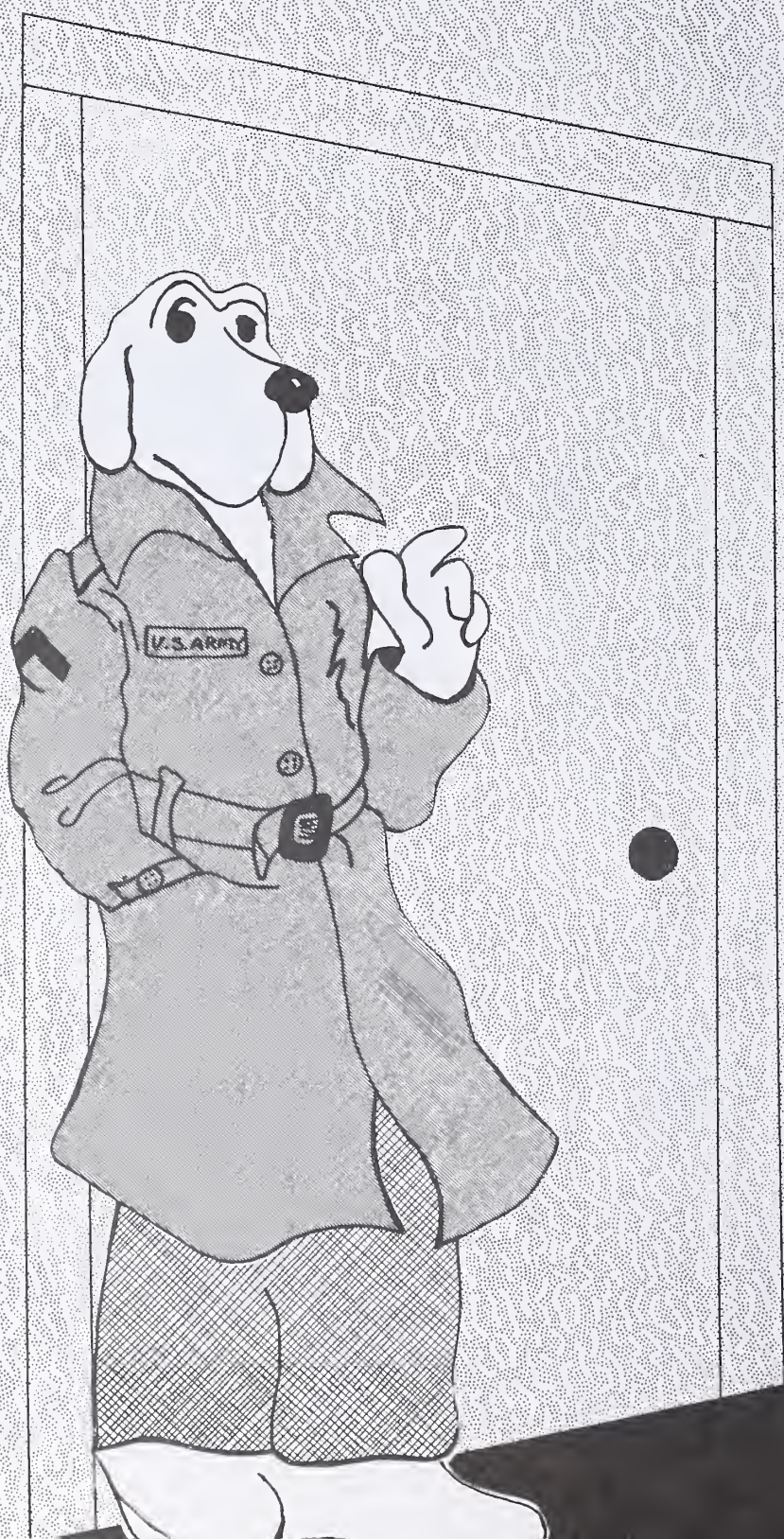
"If the Coast Guard wasn't taking care of the aids on the river, it would be unnavigable. We couldn't move the loads we're taking down the river today," Harmon concluded.

Work on the inland rivers can often be a thankless job, but because of the crews of the Cimarron and Sangamon, safe navigation is assured and commerce continues to move on the rivers. Mark Twain summed it up nicely, "Your true pilot cares nothing about anything on earth but the river, and his pride in his occupation surpassses the pride of kings."

The men and women of the Coast Guard's river tenders are accurately described by Twain's words. It's a matter of pride.

A reflective day marker, showing mile 26.8 is hoisted up the river bank by Coast Guardsmen. 'River Coasties' must frequently recontruct navigational lights along the river which have been knocked down by high water, bank erosion and stray barge traffic.

By Tracy L. Tanner



Drug detection dogs and their handlers have been a part of the military since 1970 and it looks like they're here to stay.

Last year the Armed Forces trained 312 drug detection dogs. Still, requests for dogs outnumber that sum. Having proven themselves worthy of the title, drug detector, the dogs are a deterrence to drug use and possession on military installations.

Military police drug dog handlers are responsible for training and maintaining the dogs' proficiency for finding drugs.

Basic requirements for all dog handlers include a love for animals, the strength to carry 70 pounds a certain distance and the ability of voice projection over a 30-foot distance.

The handler's duties do not stop at the end of a leash. Once teamed together, the dog works for only one handler. The handler's responsibilities include feeding, grooming and cleaning the dog's pen.

The Army requires military policemen to complete the Patrol Dog Course, Lackland Air Force Base, Texas prior to attending the Patrol Dog/Drug Detector Dog Course, also at Lackland. The handlers spend from six months to one year working a patrol dog before becoming eligible to advance to drug dogs. Only the best canine handlers are chosen to work with drug dogs.

At the nine week Drug Detector Course, the patrol dog handler

Army goes to the dogs for drug deterrence

teams with a dog for training. These dogs are capable of attack, performing building searches, and scouting and have proven themselves trainable for drug detection.

Air Force Tech. Sgt. Richard E. Cybrynski, course chief for Department of Defense drug detector dog school, explained that the first few courses allow handlers and their dogs to become partners. They then begin article retrieval training. The handlers toss the dogs' reward out for retrieval. This teaches the dog to start using his nose and listen to the commands of his handler. The dog must also follow the handler's hand signals.

The handler now introduces a drug odor to the dog with a reward. The handler and dog begin playing retrieval with the drug odor. The dog is rewarded each time he returns the object. Training in finding the drug begins when the handlers hide the drug. Once the dog finds the exact location of the drug, he receives a reward. "We shape the dog's behavior by reinforcing him with a reward for correct behavior and withholding rewards for incorrect behavior," explained Cybrynski. "As a matter of repetition, we train the dog for correct behavior."

After getting the correct responses from the dogs, the handlers move inside and start search procedures. Hiding drugs and teaching the dogs to find their location must be a game for the dogs. "If it gets too much like work, he won't want to do it," said Cybrynski, "So, it has to be fun for the dog."

The handlers' motivation must also remain high. They must constantly convince the dogs that they are having a good time. "I used to tell my students, 'If you feel like a total fool when you conduct the training, then you're probably doing it right.' Handlers have to communicate with their dog at the level of a seven-year-old child. Commands have to be short and to the point."

Once inside the buildings, the course becomes more complicated for handlers. Instead of the dog doing all of the work, the handler must guide the dog in a pattern to search the interior of a building, vehicle or airplane.

A progress check evaluates the handler's ability to condition the dog to search for the odor of drugs. Voice commands must be used properly. Rewards must be given in a timely manner. Cybrynski explained that all this has to fall into place.

"The most difficult thing for a handler is recognizing the dog's change in behavior for different drug odors," Cybrynski said. "The dog will be actively searching for something and the handler must recognize the subtle differences between a dog smelling a hampster locked inside a wall locker versus a pound of marijuana."

Recognizing that an odor is located high, such as in the ceiling is another responsibility of the handler. He must be aware of

Drug dogs

A drug detection dog and handler perform a drug search on a soldier. The person need not worry of being attacked if drugs are detected, instead the dog will alert the handler and wait for a reward. (Photo by 2nd Lt. Ingrid K. Bradley)

wind currents in the building as they affect the path the odors take.

By the end of the training, the handler should be able to tell by the subtle difference in the way the dog behaves, whether soft drugs (hashish, marijuana) or hard drugs (cocaine, heroin) have been found. Once the dog gives his response, the handler must be able to locate the drug within 12-18 inches.

Training searches performed by the drug detector dog teams give the handlers 'real life' experience before returning to their home stations. Once back at their home station, drug dog handlers may often find themselves treated as an outsider because of their job.

Sgt. Larry D. Tusing, dog handler in charge of the K-9 section at Ft. Belvoir, Va. said, "Sure, I get hassled. Sometimes I'm searching my co-workers barracks. No one is excluded. But, I'm not out there to make friends. Using drugs is against the law and my job is to uphold the law. If soldiers get busted, it's their responsibility. I'm just doing my job."

"Using drugs is against the law and my job is to uphold the law."

Aiding commander's inspections are the most common assignments for handlers and dogs. Because the dog possesses a sense of smell 200 times greater than humans, commanders can rest assured that the dogs will sniff out any illegal drugs. Time once spent physically checking a person's belongings is usually no longer necessary. The dogs save the Army time while allowing soldiers their privacy.

Dogs are also used to check household goods being shipped from overseas by military families changing stations. The crated goods are stored in a warehouse while awaiting shipment. The dogs check each crate before it is moved on. Relying on the dog's keen sense of smell, there is no need for the packages to be opened and visually inspected. This allows the system to operate smoother and get the baggage to its next destination faster.

In addition, detection dogs are used to help prevent the shipment of drugs through the mail system.

Always said to be man's best friend, drug dogs are proving their usefulness to the U.S. Army. By weeding out illegal drugs, the dogs and their handlers help ensure the United States' fighting forces remain alert and mission oriented.

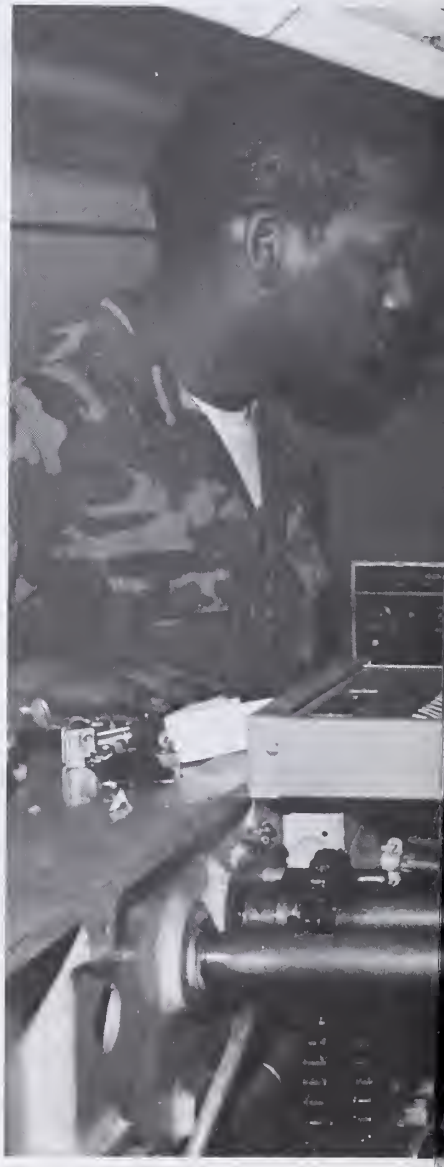
The position of drug dog handler is not given to a solider on a whim. Only the best possess the capability to train, handle and care for the keen sensed animals. Requiring soldiers to complete the steps necessary to becoming a qualified drug dog handler gives the Army the chance to choose just that—the best.

Drug detector dog handler's duties do not stop at the end of a leash. The handler's responsibilities also include feeding, grooming and cleaning the dog and pen, as well as assuring that the dog receives regular checkups by a veterinarian.

Dog handlers in the Drug Detector Dog Course at Lackland Air Force Base, Texas instill the necessary discipline in their dogs through repeated practice. Handlers from all service branches receive their training at Lackland. (Photo by 2nd Lt. Ingrid K. Bradley)

(Left) Sgt. Dennis Butterfield trims and positions a negative while preparing a flat for the plate maker. The plate maker transfers the flat's image onto a metal or paper plate for reproduction.

(Below) Sgt. Donald Morris and Cpl. Duane Clinkscale of Camp Elmore's Force Reproduction Section check the large press rollers for alignment prior to printing a job order.



Story and photos by
Staff Sgt. Earl Bolander
and Dave Marriott

Paperwork, one of the necessary functions of any business or military organization, is so important to some Marine Corps units that they order the paper by the truck load and ink by the barrel.

Force Reproduction Section, located at Camp Elmore, a small Marine Corps activity in the heart of Norfolk, Va. fits into this category. They are responsible for providing printing support for Marine Corps units in southern Virginia and North Carolina.

One of the six mobile reproduction units within the Marine Corps, Force Reproduction has the capability to move their printing operation into the field alongside Marine units participating in combat exercises.

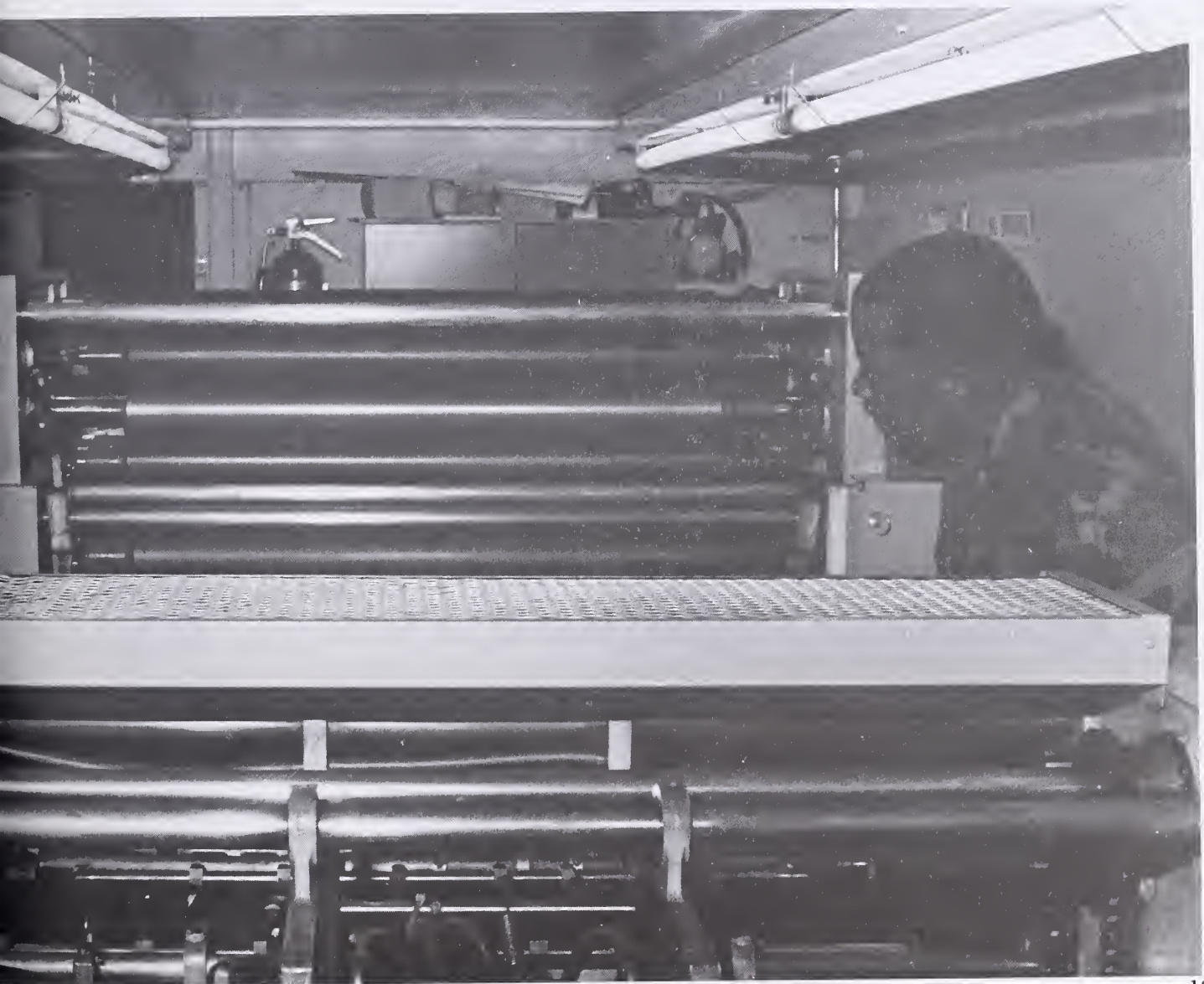
"We are a completely mobile, self-contained unit," Master Sgt. Billy J. Russell, non-commissioned officer-in-charge of the Repro section said. "We have a camera van, a plate and layout van and a press van which are used during field exercises requiring large reproduction support. We also have a duplicating van for exercises requiring less support. All we need to set up in the field is a source of electrical power and water."

When these 23-foot mobile vans are not being used in the field, they are set up for operation at Camp Elmore.

The four vans, each having a 2,317 cubic foot interior, house equipment which would have made printer Benjamin Franklin envious. A 5 by

From the large press capable of handling a map sized piece of paper to the smaller presses which can process sheets the size of a post card Force Reproduction keeps their customers satisfied with just the size job they request

Repro Marines keep the presses rolling



Offset printer operator, Cpl. Dwayne Cluck, performs preventive maintenance on a small press. The small press is capable of printing sheets as small as a post card or as large as a magazine cover.

6 by 12 foot camera, weighing 2,400 pounds, allows repro Marines to shoot a negative ranging anywhere from 25 to 300 percent of the original's size.

The plate and layout van, arranged much like an office, has a layout board, plate developing tank, storage cabinets and plate maker. The heaviest of the vans contains the large press. The press, measuring 79 inches high, 64 inches wide, 115 inches long, and weighing 8,500 pounds, has a maximum output of 8,000 single pages per hour.

The duplicating van has a plate maker which takes an image of the original, sets the exposure time and transfers the image onto a plate. It has the capability to make a plate from 45 to 150 percent of the original's size.

Although the duplicating van is adequate for most jobs in the field, it does lose a small degree of detail because the original's image is placed directly onto a plate instead of onto a negative first and then being transferred to a plate.

This expensive equipment would be useless to the Marine Corps without properly trained operators. The Marine Corps has 192 reproduction Marines, 17 of which are stationed with the Force Reproduction Section.

Marines attend reproduction schools at Ft. Belvoir, Va. which range in length from nine to 16 weeks.

"Basically, there are three jobs within the reproduction field," stated Russell. "We have process camera operators, offset press operators and the supervisors—reproduction chiefs."

To complete any printing job takes the combined skill and expertise of both the process camera operator and the offset press operator.

The camera operator begins the reproduction process by placing the material on a copy board which stands approximately five feet in front of the camera lens. The camera is adjusted for the proper size of print and the appropriate screen is added for emphasis on detail in accordance with each individual job order requirement.

After shooting the picture and developing the negative, the process camera operator strips the negative on a flat (blank holder) producing a layout ready for the plate maker.

Using an arc plate maker, the process camera operator transfers the flat's image onto the plate. The plate, which may be metal or paper depending upon the amount of copies to be printed, is ready for immediate use or storage.

The press operator uses the type of plate and the job order information to select the proper weight and texture of the paper for each printing assignment.

After mixing the chemicals and ink required, the press operator places the plate on to the press and prints the amount of copies requested.

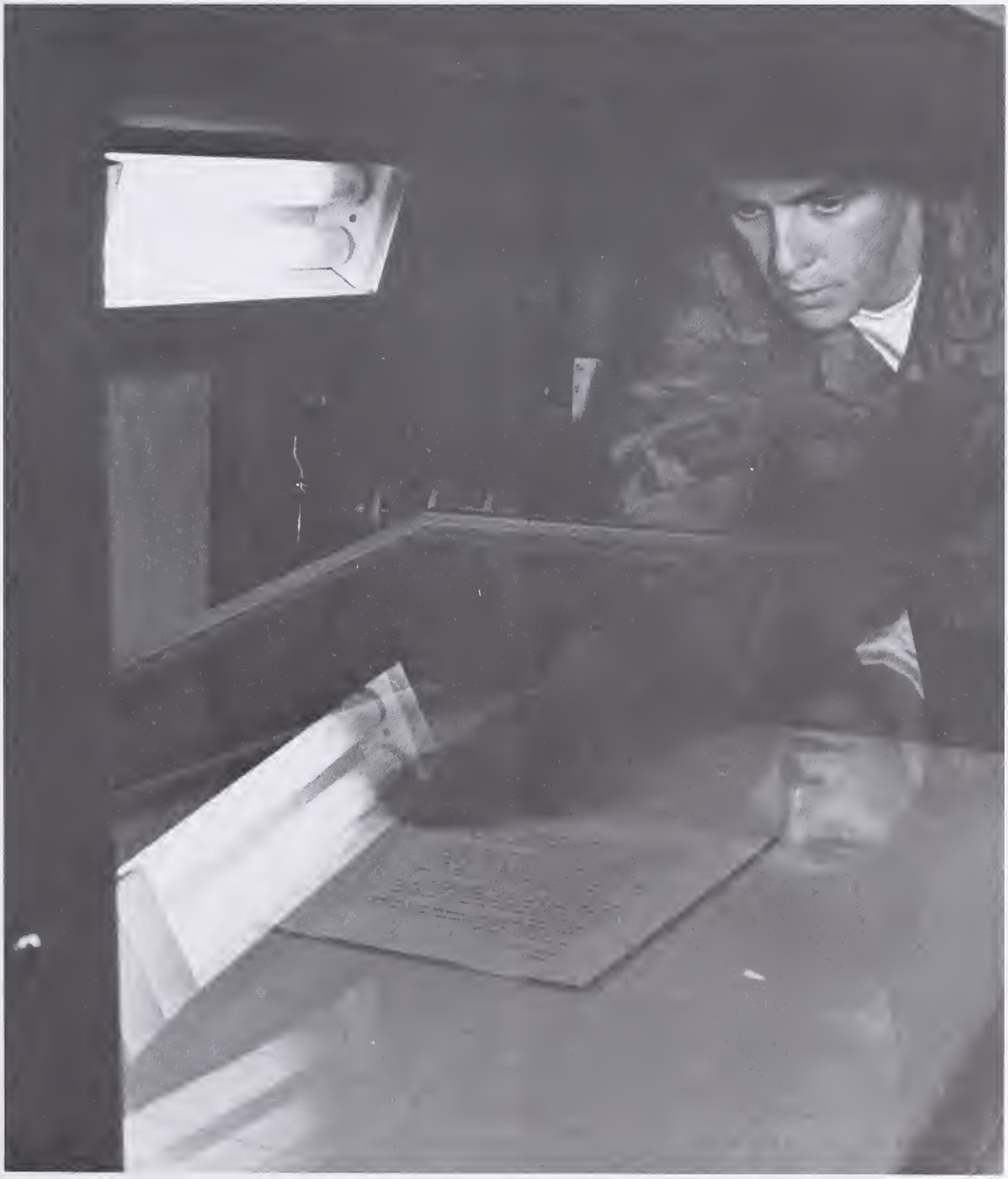
In addition to operating the press, the press operator maintains and operates a collator capable of collating up to 10 separate pages at

once, a heavy duty stitcher, a paper cutter and a paper drill which can punch any number of holes of different sizes.

"Ninety percent of our work is done on the small presses in the reproduction shop, but larger jobs require the use of the vans," explained Russell. "Printing a 10 by 14 inch sheet is about as large as we can handle without the vans. The large press in one of the vans is capable of handling a sheet 22 by 29 inches."

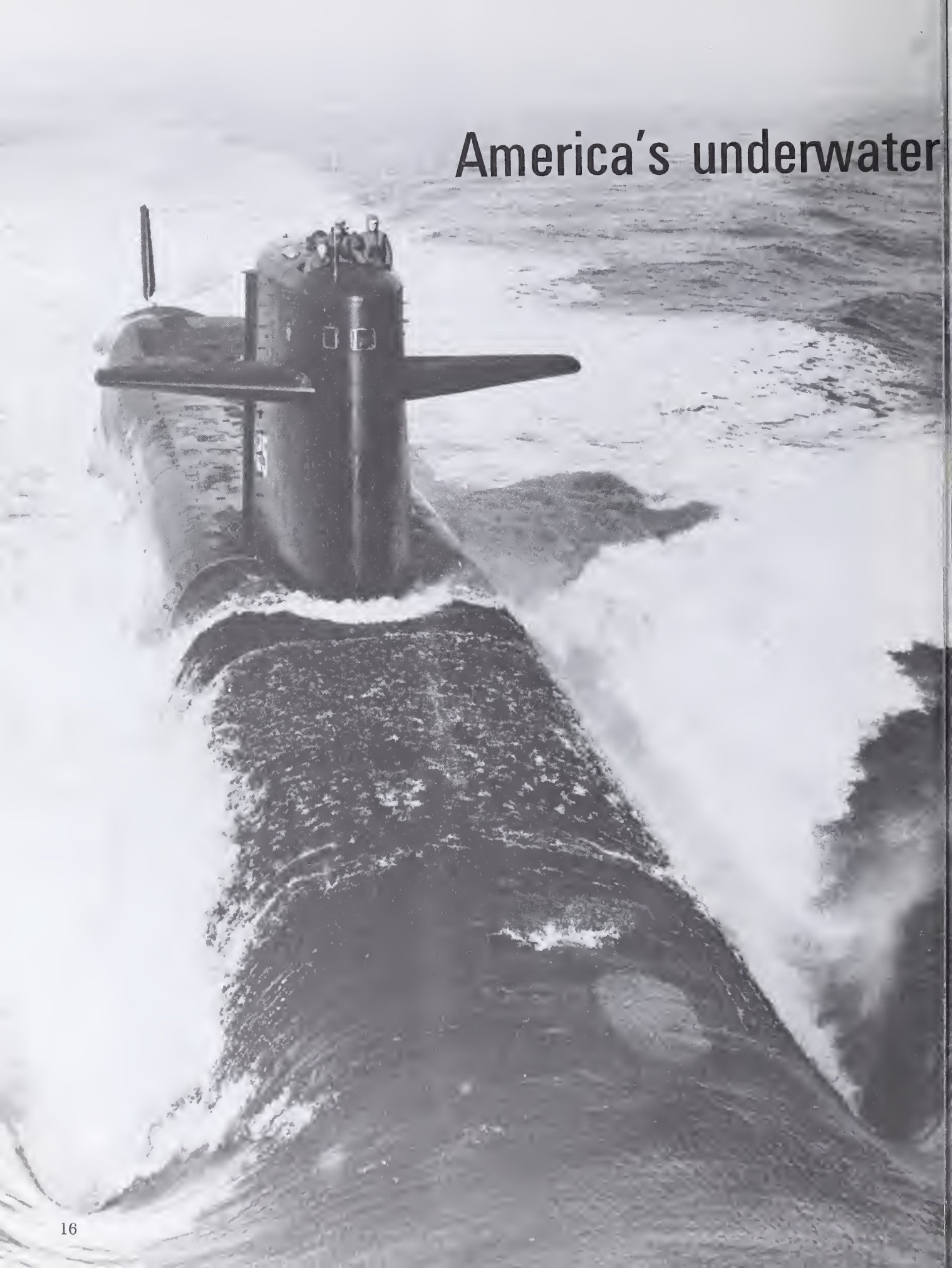
"Repro" is also capable of providing two-color printing and has on occasion provided four-color topographical maps (military maps) for Fleet Marine Force Atlantic.

It doesn't matter whether the finished product is in color or black and white. The Marine reproduction section provides the necessary paper, ink and professional expertise to meet the demands of any Marine Corps unit under both field (combat) conditions or during peacetime.



An original is positioned for shooting on the 3M camera's copy board by Cpl. Daniel Dunn. The 3M camera transfers the original image directly onto a plate ready for printing.

America's underwater



Navy Submariners

By Dave Marriott

Dolphins.

Not the friendly black and white mammals which follow ships for miles across the oceans entertaining passengers and crews alike with their playful leaps from the water and swimming tricks. Rather—a three-inch, silver colored, breast insignia awarded to an elite force within the United States Navy.

These 'dolphins' identify American sailors who travel the world beneath the sea's surface. A group of men who live and work together for months at a time in conditions more crowded than any barracks or surface ship—submariners.

The Navy does not randomly assign these sailors to submarine duty, they are all volunteers. Before being accepted for this rigorous duty, sailors must meet certain mental and physical prerequisites. Even then, they are not handed a set of 'dolphins' —they must earn them. This takes many months of training.

For most, this training begins at the Navy Submarine School in Groton, Conn.

Submarine School trains officers and enlisted men in the basic knowledge and technical skills upon which submarine commands build competence and proficiency in operating and maintaining their submarines.

The school conducts 318 courses

Students in the damage control lab patch pipe leaks using tools and material which would be available on a submarine at sea. The instructor controlled leaks are capable of gushing up to 1,100 gallons of water per minute. (Photo by Petty Officer 2nd Class Paul Stevens.)

encompassing the entire spectrum of submarine maintenance and operations. The courses' lengths vary from one day to six months. Basic, intermediate and advance courses are taught. The largest, and by far the most important to sailors seeking their 'dolphins,' is the Basic Submarine Course.

The six week Basic Course provides prospective submariners with their initial indoctrination in submarining. Sixty percent of the students arrive directly from boot camp; the others are a mixture of sailors who have completed submarine related technical schools or who have previously served on surface vessels.

"When we get them they know nothing about submarines," stated Chief Petty Officer Warren T. Kenny, a basic course instructor. "We take the students and teach them basically how the submarine operates. How it dives, surfaces and how to live on board."

The course curriculum includes numerous subjects with emphasis on the basic principles of the major submarine systems.

Students are taught how the engineer plant works, the design and layout of the trim and drain system, about the on-board ventilation system, electrical system, atmosphere control system, communications and weapons systems. In addition, students receive extensive training in damage control and escape and rescue procedures.

The course is comprehensive, fast-paced and academically tough. Thirteen percent of the students reporting aboard will not complete the course.

"We find that, academically, the course is not as tough as the pace with which we deal with the subject matter," commented Capt. Sibley L. Ward III, commanding officer of Submarine School. "We teach the basic course in six weeks. I consider the pace an important factor as it allows us to weed out those sailors that are not willing to work. Submarines have small crews, and for them to successfully complete their missions requires an all out team effort."

Instructors

Classes are taught by some of the submarine force's best. All the instructors at Submarine School have performed at sea what they teach in class. Technical expertise and sea experience are two of the prerequisites required of submarine school instructors. Before instructing from a classroom platform, they must pass a screening process and complete several instructor training classes.

"We can't have instructors who have two left feet or that can't tie

The diver trainer, a simulated submarine control room, gives students hands-on training in diving and surfacing procedures while hydraulics move the trainer up, down and from left to right just as an actual submarine would. (Photo by Saul Fitzgerald)

two sentences together without adding 15 or 20 'Uhhs'," said Ward. "We need instructors who can deliver information in such a way that students can follow and learn the material. Our instructors must be able to relate to the subject they teach and discuss how these same maintenance and operational procedures will be conducted at sea."

The instructors don't rely solely on textbooks and experience to teach their pupils. In many cases, students learn what they will be doing on subs through hands-on training.

Training Labs

Scattered throughout submarine school's 29 classroom buildings are training labs with an emphasis on realism. There are numerous labs on various systems ranging from communications to diver training.

The diver training lab is a simulated, submarine control room. Students practice diving and surfacing procedures while the trainer pitches up, down and side to side just as an actual ship would.

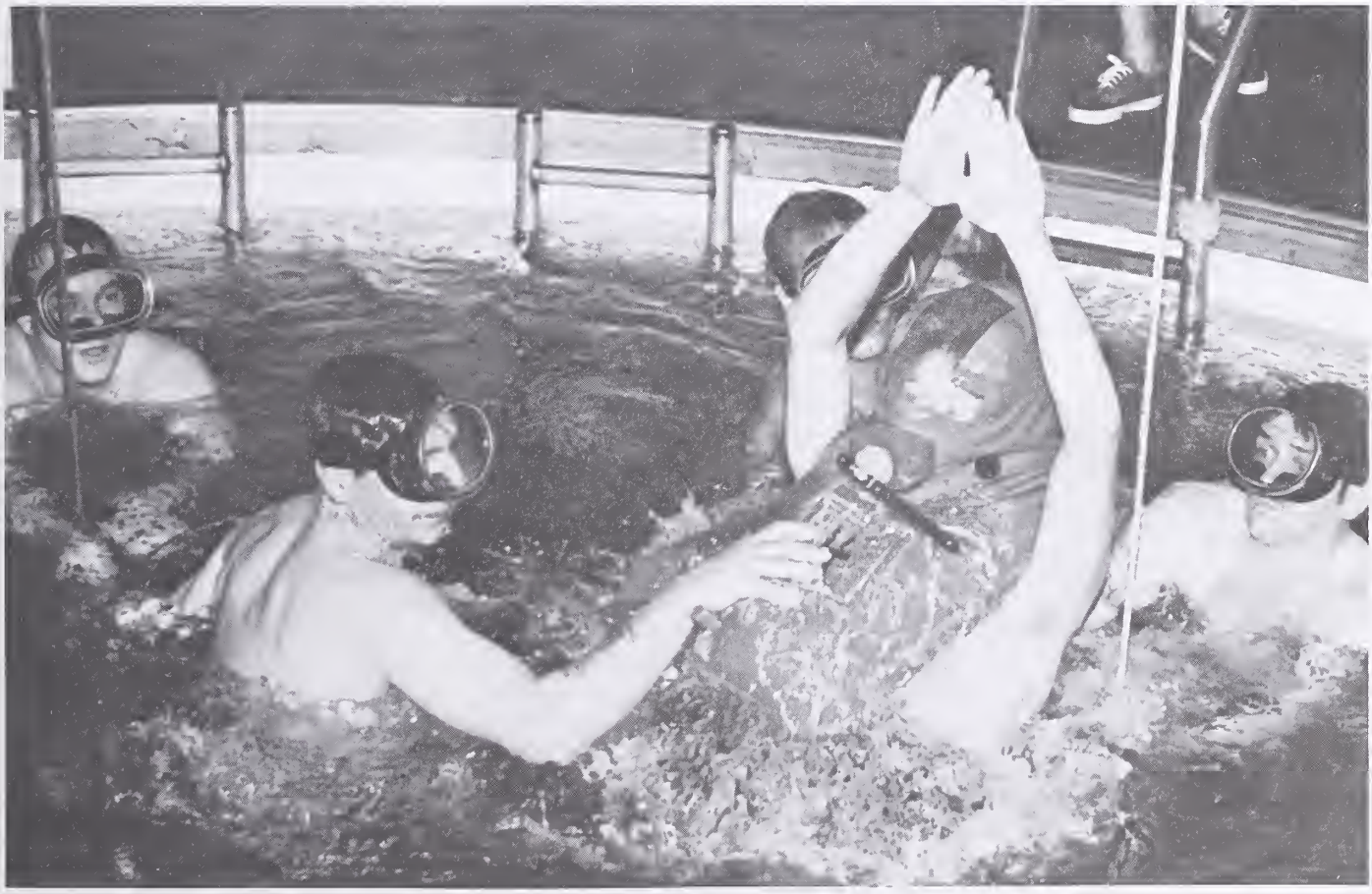
A favorite of the students and the most demanding experience is the damage control lab. Sailors are placed in a compartment similar to a submarine's engine room. Instructors then flood the compartment through one or more of fourteen locations within the walls. The students are required to stop or slow down the leaks with materials which would be available were they actually at sea.

The course is fast-paced and difficult, but most students completing the course are satisfied with the training they've received.

A recent graduate of the Basic Course, Petty Officer 3rd Class Gregory A. Thompsen said, "The school was very demanding. I had to study each night for as many as four hours, but it was worth it. I now feel confident that I will be able to perform as expected on my first submarine assignment."

Training does not end for sailors upon completion of Submarine School. When they report to their first duty assignment, they are placed in an on-board training program which adapts the basic principles taught at submarine school to their ship's unique systems.

The program ensures the sailor masters the skills necessary to function effectively on his ship's major systems with a minimum of supervision. Twelve to 14 months after reporting aboard, having completed the program, the sailor dons his 'dolphins' and becomes a member of an elite group of men within the United States Navy—submariners.



Instructors assist a student as he breaks the surface after completing a 50-foot ascent through the escape training tank. The 250,000 gallon tank simulates a submarine's worst disaster—a sinking.

Air Force's flying secretaries

FLIGHT

Staff Sgt. Brian Pacejka (left) discusses flight data with Capt. Stewart Monti, the C-130 aircraft pilot during a mission to Ohio. Pacejka is an Air Force flight engineer assigned to the 39th Tactical Airlift Squadron at Pope AFB, N.C.

Story and photos by
1st Lt. A.V. Stephenson

"Sometimes I feel like a flying secretary," says the flight engineer as he picks up his gear and prepares for another mission aboard "his" aircraft—a C-130 Hercules cargo transport.

The flight engineer is Air Force Staff Sgt. Brian M. Pacejka of the 39th Tactical Airlift Squadron at Pope Air Force Base, N.C. While he has a certain amount of paperwork to do during the course of a mission, his responsibilities go much further.

The first of these responsibilities comes after he checks in for his preflight briefing in the squadron with the rest of the crew. Their missions vary from transporting tons of equipment to another area of the United States to a routine training mission over the nearby Fort Bragg Military Reservation. Regardless of its complexity, the flight engineer's commitment remains the same—to ensure that all systems are "go."

"After the crew checks in, we attend a preflight briefing," explained Pacejka. "During that briefing we are told what our mission for the day will be. If there is to be more than one aircraft taking part in the mission—like a five- or six-ship formation—then other crews join us.

"Normally after the aircrews are briefed," he said, "the flight engineers and loadmasters (another enlisted aircrew member tasked with loading the aircraft) go one way, and the pilots and navigators go another. While our pilots and navigator file the flight plan and check the weather at base operations, the rest of the crew

ENGINEERS

goes to the aircraft and begins the preflight."

Preflight of Staff Sgt. Pacejka's aircraft begins with a brief walk-around inside, making sure everything looks in order. "The initial preflight takes about 45 minutes," he said. "I check the 'Herk's' electrical power—the lights and various monitoring systems."

The Hercules has a maze of hydraulic systems. While every crew member keeps alert for possible leaks, it's usually the flight engineer who finds a leaky seal.

During one portion of the preflight, Pacejka walks the entire width of the Herky's nearly 133-foot wingspan, which is 2½ stories off the ground at its highest peak, "looking for anything that doesn't seem right."

Pacejka has been a flight engineer for three years, but he still relies on his maintenance background when tasked to find trouble spots on the aircraft.

"After I finish my initial walk through and walk around of the aircraft I still have quite a few things to do before we can fly. I run the flight controls through the paces—flaps up, flaps down," he explained.

His job is not over once the preflight is completed, it has really just begun. "Each crew member has a copy of the takeoff checklist and goes through his or her checklist once the engines are started. We communicate with each other over the ship's intercom using headsets.

"While we run through those checklists each of us has our own responsibilities. I keep watch on a

Air Force flight engineer Staff Sgt. Brian Pacejka discusses a maintenance problem of the C-130 aircraft with Senior Amn. Albert Celeste. Pacejka's job responsibilities include reporting all maintenance problems.

variety of the aircraft's systems —electrical and fuel—and continually check the engines to make sure they are performing within limits. We all stay alert and watch for anything that doesn't seem right. You have to work as a team."

Maj. Donald A. Streater, a command pilot, agrees with Pacejka. "There is a great deal of activity before an aircraft can take off," said the major. "All crew members have to pull their own weight.

"Flight engineers are especially important to me because they know their aircraft from top to bottom. If something begins to go wrong, they are usually quick to identify the problem areas allowing us to take the proper actions."

Once the aircraft becomes airborne, Pacejka begins handling systems such as pressurization, air conditioning, anti-icing, fuel and electrical panels and in certain situations, setting cruise power. He constantly monitors these systems to ensure everything works properly. Should something go wrong, he reports it to the aircraft commander.

To add to his workload, the staff sergeant is also responsible for calculating the airspeed and fuel balance needed for takeoffs, flights, and landings. He also maintains the flight log, recording the aircraft's flight time and keeps count of hours flown by each crew member. Other logs, such as in-flight maintenance record, also come under his responsibility.

"Should something go wrong with the aircraft in flight," he said, "I'd have to report the malfunction once we set down. Any aircraft maintenance performed away from our home base is done under my direction."

As with the majority of the Air Force's 2,700 flight engineers, this 23-year-old staff sergeant has a strong background in aircraft maintenance. Before becoming a flight engineer, he was stationed at Eglin, AFB, Fla., as a maintenance crew chief. His aircraft there was the F-4 Phantom, a multi-purpose, all-weather, twin-engine jet fighter.

The four-engine Hercules transport and the Phantom may seem totally different, but Pacejka believes they are similar because "both are flying machines."

"I was a crew chief for 3½

Staff Sgt. Brian Pacejka, a flight engineer inspects his aircraft from top to bottom for structural damage. Flight engineers are tasked with pre-flight inspections, airborne maintenance trouble-shooting and monitoring of electrical and fuel systems.

years," he said. "While I was stationed at Eglin, I had a chance to work with the rescue birds (HC-130's, the main fixed-wing aircraft of the Military Airlift Command's Aerospace Rescue and Recovery Service). I became interested in the rescue side of the house, and I liked working on the Herky. So when I had the chance to crosstrain to C-130s, I did."

When he decided to make the switch from maintenance to flight engineer, the native of Downers Grove, Ill., had to attend several schools to prepare for his new duties.

The first leg of his flight engineer training came at Altus AFB, Okla. (six weeks), followed by a 70-day school directed specifically toward C-130s at Little Rock AFB, Ark. For other engineers, those flying in MAC's C-141 Starlifter cargo transports and the world's largest aircraft, the C-5 Galaxy transport, Altus AFB hosts their training.

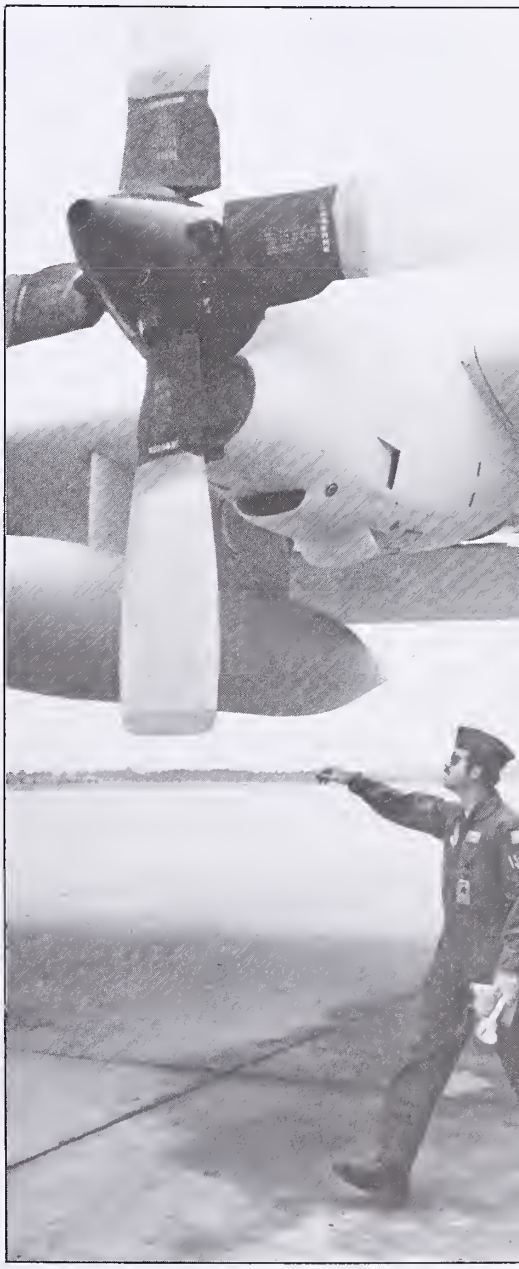
In addition to learning the tools of their trade, all aircrew members must attend several survival schools. Finally after 60 to 90 days of local orientation (learning local landmarks, flying hazards, and weather patterns) at their assigned base, a new flight engineer joins an aircrew as a regular member.

Pacejka was looking for more than another job when he became a flight engineer. "I'm a flier by heart," said the flight engineer. "It's been in my blood since I was about six months old. My dad works for a commercial airline and I've been in the Civil Air Patrol (CAP) for eight years. I joined CAP about two years before I enlisted in the Air Force, and it has really helped me in my Air Force career."

Staff Sgt. Pacejka is also an instrument-rated commercial pilot with more than 340 flying hours. He has about 1,000 hours as a flight engineer. He is working toward his multi-engine license during his off-duty time.

The anecdote which refers to flight engineers as flying secretaries is perpetuated by the engineers themselves, explained the staff sergeant. "Flight engineers often make light of the large amounts of duties which fall under their responsibility," Pacejka said, "but it's only sort of a release valve."

"I'm a flyer. I enjoy flying and being in the Air Force as a flight engineer fills the bill. Just like the slogan, it's a great way of life."



Engine propeller and flight control inspections being accomplished above and right are only a small portion of the responsibilities the Air Force gives flight engineers. Staff Sgt. Brian Pacejka has been a flight engineer for 3½ years.

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FLARE

"I do not know much about gods; but I think that the river is a strong brown god--sullen, untamed and intractable."

T.S. Eliot

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